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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/577,449	05/24/2000	Scott C. Harris	SCH/BIOMETRICS	4716

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EXAMINER
SHIN, KYUNG H

ART UNIT	PAPER NUMBER
2143	

DATE MAILED: 01/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 August 2004*.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8,10,11 and 13-21* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8,10,11 and 13-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 May 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____ .

DETAILED ACTION

Response to Amendment

1.   This action is responding to application papers filed 5/24/2000

2.   Claims **1 - 21** are pending. Claims **9, 12, 22-25** are cancelled. Independent claims
are **1, 7, 11, 14, 17**.

Response to Arguments

3.   Applicant's arguments filed 8/23/2004 have been fully considered but they are not
persuasive. In response to applicant's argument that the references fail to show certain
features of applicant's invention, it is noted that the features upon which applicant relies
(i.e., fingerprint) are not recited in the rejected claim(s). Although the claims are
interpreted in light of the specification, limitations from the specification are not read into
the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

3.1   Applicant states that the specified prior art (Bjorn in view of Takhar) does not
disclose a ratio used in the generation of a biometric value to determine user
authentication. The Bjorn reference (US 6,035,398) discloses the generation of a
biometric value and further generation of a resultant cryptographic key used for
encryption/decryption. The Bjorn reference in view of the Takhar reference (US
6,002,787) discloses the usage of a ratio parameter in the generation of a
biometric value and generation of a resultant cryptographic key (see Takhar col.
26, lines 7-24; col. 26, lines 38-41) The usage of a ratio relationship for Applicant

invention and referenced prior art is identical.

3.2   Applicant states that the specified prior art (Bjorn) does not disclose a sequence

of entries used to generate a cryptographic key, which is used for

encryption/decryption.   The Bjorn prior art discloses a template which specifies

the precise sequence of parameters used to generate a cryptographic key. (see

Bjorn col. 4, lines 21-24; col. 1, lines 42-50) The parameters can consist of some

or all of the features of a biometric value such as a fingerprint including missing

values (i.e. ghost points)

3.3   Applicant states that the specified prior art (Bjorn) does not disclose an image

sensor chip (i.e. IC chip where pressure is applied during scan process) used to

input and generate a value for a biometric characteristic (i.e. fingerprint). The

referenced prior art (Bjorn in view of Takhar) discloses an IC chip used to input a

biometric characteristic via pressure applied to the sensor surface. (see Takhar

col. 26, lines 11-15) The scanning process for the Applicant invention and the

referenced prior art are identical.

3.4   Examiner has examined the Applicant remarks and re-examined the current set

of amended claims (claims 1-8, 10, 11, 13-21) based on the referenced prior art.

The re-examination and analysis of Applicant remarks are not persuasive.

Examiner respectfully rejected claims 1-8, 10, 11, 13-21 based on USC 103(a)

due to the referenced prior art, Bjorn in view of Takhar.

4.   The text of Title 35, U.S. Code not included in this action can be found in a prior

Office action.

Claim Rejections - 35 USC § 103

5.   **Claims 1-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over**

Bjorn (U.S. Patent No. 6,035,398) in view of Takhar (U.S. Patent No. 6,002,787).

Regarding Claim 1 (Original), Bjorn discloses a method comprising:

a)   obtaining information about a biometric part of a user's body; (see Bjorn col. 1,

lines 39-42; col. 4, lines 4-7: generate biometric information utilized for user

authentication)

b)   **Bjorn** discloses the transformation of biometric data into a cryptographic key

using relative dimensions between regions of a biometric image of

fingerprint, (see Bjorn col. 3, lines 32-34; col. 4, lines 17-19; col. 7, lines 32-

34: *"...relation to global features; code words generated by vector quantization*

to encode subunit spatial characteristics; etc."). Not explicitly taught by **Bjorn** is

forming a key based on biometric information without determining <u>absolute</u>

<u>dimensions.</u>

The Applicant's Abstract defines: *"The biometric part image is obtained and*
items within the biometric part are analyzed; Relationship between those parts
are determined, e.g. Ratios between different parameter of different parts; those
ratios are then used to form the key." However, **Takhar** discloses *Ratios of*
different parts (see Takhar col. 26, lines 7-24; col. 26, lines 38-41: "*.....the scan*
produces the most even spacing of ridge to valley ratios. ...... produces the best
results for level adjust, however, if ratios close to 1:1") are analyzed during the
fingerprint scan and analysis process.

Therefore, It would have been obvious to one of ordinary skill in the art at the
time the invention was made to modify **Bjorn** without determining absolute
dimensions e.g. Ratios as taught in **Takhar.** One would have been motivated to
utilize relationship e.g. Ratios between those parts in order to analyze
fingerprint information, so that the obtained information be translated into the
cryptographic key to allow access with accurate verification and to optimize
cryptographic key generation. (see Takhar col. 1, lines 46-53: *" ... volume of*
input data becomes so large ... and comparison operations are complex ...
vastly simplifies these problems by implementing a vector analysis technique
compatible with a much smaller image area of the fingerprint ... ")

Regarding Claims 2, 18 (Original), Bjorn discloses a biometric authentication system.
Bjorn does not disclose the usage of ratios. However, Takhar discloses a method as in
claim 1 wherein said forming comprises determining ratios between different portions of

said biometric information. (see Takhar col. 26, lines 7-24; col. 26, lines 38-41: ratios

utilized for biometric parameter generation)

Therefore, It would have been obvious to one of ordinary skill in the art at the time

the invention was made to modify **Bjorn** without determining <u>absolute dimensions</u> e.g.

Ratios as taught in **Takhar.** One would have been motivated to utilize relationship e.g.

Ratios between those parts in order to analyze fingerprint information, so that the

obtained information be translated into the cryptographic key to allow access with

accurate verification and to optimize cryptographic key generation. (see Takhar col. 1,

lines 46-53)

Regarding Claims 3, 6, 10 (Original), Bjorn discloses method as in claims 1, 8, 11

further comprising entering a plurality of different biometric features extraction, an order

of forming the code. (see Bjorn col. 4, lines 21-24: *" ... includes at least some of the*

features extracted ... includes all of the identifying features extracted....";   col. 3, lines

22-29; col. 4, lines 30-36) Not explicitly taught by **Bjorn** is in a sequence, an order of

the sequence forming the code. However, **Takhar** discloses entering a plurality of

different biometric features in a sequence, an order of the sequence forming the code.

(see Takhar col. 10, lines 28-34: *" ... fingerprints are obtained on an imaging device as*

shown at 165, which converts a fingerprint image into a sequence of digitalized

numerical codes,..")

Therefore, It would have been obvious to one of ordinary skill in the art at the time

the invention was made to modify **Bjorn** with <u>a sequence of entry of fingerprints</u> as

taught in **Takhar.** One would have been motivated to generate a unique key from extracted feature parts in order to make a strong fraud prevention system and to optimize cryptographic key generation. (see Takhar col. 1, lines 46-53)

Regarding Claims 4, 19 (Original), Bjorn discloses a method as in claims 1,17 further comprising entering information that is supplemental to the biometric information, the supplemental information indicating parts of the biometric information, which should be used to form the code. (see Bjorn col. 3, lines 25-35)

Regarding claims 5, 20 (Original), Bjorn discloses a method as in claim 1 wherein said biometric part is a fingerprint. (see Bjorn col. 1, lines 39-41: biometric feature equal to fingerprint)

Regarding claim 6 (Original), Bjorn discloses a method as in claim 4 wherein the supplemental information includes an angle of a line used to obtain the information. (See Bjorn Figure 9; col. 6, lines 30-49)

Regarding Claim 7 (Previously Presented), Bjorn discloses a biometric authentication system. Bjorn does not disclose the usage of ratios. However, Takhar discloses a method comprising: entering biometric information; determining <u>at least one relationship</u> between different parts of the biometric information, <u>where said relationship</u>

includes a ratio between different parts of an image; and using said at least one

relationship to form a cryptographic key.

The Applicant's Abstract defines: *"The biometric part image is obtained and*

items within the biometric part *are analyzed; Relationship between those parts* *are*

determined, *e.g. Ratios* *between different parameter of different parts; those ratios are*

then used to form the key." However, **Takhar** discloses *Ratios of different parts* (see

Takhar col. 26, lines 7-24; col. 26, lines 38-41: ".....*the scan produces the most even*

spacing of *ridge to valley* *ratios.* *...... produces the best results for level adjust,*

however, if *ratios* *close to 1:1"*) are analyzed during the fingerprint scan and analysis

process.

Therefore, It would have been obvious to one of ordinary skill in the art at the time

the invention was made to modify **Bjorn** without determining absolute dimensions e.g.

Ratios as taught in **Takhar**. One would have been motivated to utilize relationship e.g.

Ratios between those parts in order to analyze fingerprint information, so that the

obtained information be translated into the cryptographic key to allow access with

accurate verification and to optimize cryptographic key generation (see Takhar col. 1,

lines 46-53)

Regarding claim 8 (Original), Bjorn discloses a method as in claim 7 further comprising

using said cryptographic key to encrypt or decrypt information. (see Bjorn col. 4, lines

30-36: keys utilized for encryption/decryption)

Regarding Claim 11 (Previously Presented), Bjorn discloses an apparatus, comprising:

a) a biometric information obtaining part; (see Bjorn col. 3, lines 6-7: fingerprint

   sensor unit)

b) a computer; (see Bjorn Figure 1; col. 2, lines 37)

c) **Bjorn** discloses wherein computer is responsive to obtain an image from the

   biometric information part, extract values from the biometric information part,

   and use said values to encrypt or decrypt a message, and <u>wherein said</u>

   <u>computer obtains a plurality of different biometric information parts, and</u>

   <u>wherein</u> a sequence of biometric features used to form the code e.g. input to

   generate a cryptographic key. (see Bjorn col. 4, lines 21-24: " ... *includes at*

   least some of the features extracted ... includes all of the identifying features

   extracted...." and col. 3, lines 22-29; col. 4, lines 30-36) Not explicitly taught by

   Bjorn is <u>wherein both the content of the information parts and a sequence of</u>

   <u>entry of the information parts, forms the code</u>. However, **Takhar** discloses <u>both</u>

   <u>the content and a sequence of entry of the information parts, forms the</u>

   <u>code</u> (see Takhar col. 10, lines 28-34: " ... *fingerprints are obtained on an*

   imaging device as shown at 165, which converts a fingerprint image into a

   sequence of digitalized numerical codes,..")

   It would have been obvious to one of ordinary skill in the art at the time the

invention was made to modify **Bjorn** with <u>both the content and a sequence of</u>

<u>entry of fingerprints</u> as taught in **Takhar**. One would have been motivated to

generate unique key from extracted feature parts in order to make a strong fraud

prevention system and to optimize cryptographic key generation. (see Takhar

col. 1, lines 46-53)

Regarding Claim 13 (Previously Presented), Bjorn discloses a biometric authentication

system (see Bjorn col. 1, lines 39-42). Bjorn does disclose the usage of ratios.

However, Takhar discloses an apparatus as in claim 11 wherein the information is

formed by relationships between different parts of an image of the biometric information.

(see Takhar col. 26, lines 7-24; col. 26, lines 38-41: ratios utilized for biometric

parameter generation).

It would have been obvious to one of ordinary skill in the art at the time the

invention was made to modify **Bjorn** without determining absolute dimensions e.g.

Ratios as taught in **Takhar.** One would have been motivated to utilize relationship e.g.

Ratios between those parts in order to analyze fingerprint information, so that the

obtained information be translated into the cryptographic key to allow access with

accurate verification and to optimize cryptographic key generation. (see Takhar col. 1,

lines 46-53)

Regarding claim 14 (Original), Bjorn discloses a biometric authentication system (see

Bjorn col. 1, lines 39-42) Bjorn does not disclose the usage of an image sensor chip

and pressure on chip surface to obtain biometric information. However, Takhar

discloses a fingerprint sensor comprising: an image sensor chip forming a plurality of

pixels for sensing an image, said chip having an active surface which receives said image, said active surface adapted to receive a finger thereon to obtain a fingerprint there from and produce an output indicative of the fingerprint. (see Takhar col. 26, lines 11-15: pressure scan chip used for biometric)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify **Bjorn** to utilize pressure scanning chip as taught in **Takhar.** One of ordinary skill in the art would have been motivated to employ Takhar in order to utilize relationship e.g. Ratios between those parts in order to optimize cryptographic key generation (see Takhar col. 1, lines 46-53)

Regarding claim 15 (Original), Bjorn discloses a biometric used to form a cryptographic key for an authentication system (see Bjorn col. 1, lines 39-42) Bjorn does not disclose the usage of an image sensor chip and pressure on chip surface to obtain biometric information. However, Takhar discloses a sensor as in claim 14 further comprising: a computer part, connected to said image sensor, receiving said output. (see Takhar col. 26, line 11-15: pressure scan chip used for biometric)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify **Bjorn** to utilize pressure scanning chip as taught in **Takhar.** One of ordinary skill in the art would have been motivated to employ Takhar in order to utilize relationship e.g. Ratios between those parts in order to optimize cryptographic key generation (see Takhar col. 1, lines 46-53)

Regarding claim 16 (Original), Bjorn as modified discloses a method as in claim 15

wherein said cryptographic key formed from a relationship between different parts of the

image. (see Bjorn col. 6, lines 30-49)

Regarding Claim 17 (Original), Bjorn discloses a method, comprising:

  a) obtaining information about a plurality of biometric parts of a user's body; (see

     Bjorn col. 1, lines 39-42; col. 4, lines 4-7: generating biometric information utilizing

     in the identification of an individual)

  c) using said cryptographic key to one of encrypt or decrypt a message. (see Bjorn

     col. 4, lines 30-36: keys are utilized for encryption)

  b) forming a cryptographic key based on said information using both the plurality of

     parts and a sequence of entry of the plurality of parts; (see Bjorn col. 3, lines 32-

     34; col. 4, lines 17-19; col. 7, lines 32-34)

     It would have been obvious to one of ordinary skill in the art at the time the

invention was made to modify **Bjorn** with <u>a sequence of entry of fingerprints</u> as taught

in **Takhar.** One would have been motivated to generate a unique key from extracted

feature parts in order to make a strong fraud prevention system and to optimize

cryptographic key generation. (see Takhar col. 1, lines 46-53)

Regarding Claims 21 (Previously Presented), Bjorn discloses a method as in claim 19

wherein the supplemental information includes an angle. (see Bjorn Figure 9; col. 6,

lines 30-49: "*Ridges in fingerprints are continuous, therefore, a ghost point along a ridge which points at a ninety degree <u>angle</u> from the direction of the ridge .....*") Not explicitly taught by **Bjorn** is the supplemental information includes an angle of a line <u>along which</u> <u>biometric information is sampled.</u> However, **Takhar** discloses an angle of a line <u>along</u> <u>which biometric information</u> (see Takhar Figure 37a; col. 19, lines 17-19: " *Normalize the fingerprint scan by rotating the scan around the vector (a) origin until vector (a) is at a 90.degree. <u>angle</u> with the original base <u>line</u> y-axis origin. »)*

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify **Bjorn** utilize an angle of a line in biometric calculations as taught in **Takhar.** One would have been motivated to generate a unique key from extracted feature parts in order to make a strong fraud prevention system and to optimize cryptographic key generation. (see Takhar col. 1, lines 46-53)

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kyung H Shin whose telephone number is (571) 272-3920. The examiner can normally be reached on 9 am - 7 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A Wiley can be reached on (571) 272-3923. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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K H S

Kyung H Shin
Patent Examiner
Art Unit 2143

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KHS
Jan. 23, 2005

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